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A revision of Orobanchaceae in Thailand

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ABSTRACT. Two genera and a total of three species are recognised following revision of Thai Orobanchaceae. *Aeginetia* comprises the widespread *A. indica* (lectotypified here) and the much rarer *A. pedunculata*. Despite widespread variation in *A. indica* subspecies cannot be recognised. Investigation of the breeding biology of *A. indica* may yield information pertinent to understanding its pattern of variation. The author citation for *A. pedunculata* (lectotypified here) is clarified. The endemic *Christisonia siamensis* (lectotypified here) is the sole representative of that genus in Thailand. The latter's relationship to other species in the genus must await collection of much more material than is currently available. SEM photographs of the pollen of the two genera are provided for the first time.

INTRODUCTION

Orobanchaceae comprises 15–16 genera and 150–200 species worldwide. The family is almost cosmopolitan, but is absent from eastern South America, eastern Australia and New Zealand. The Orobanchaceae is very closely allied to the Scrophulariaceae. It is often distinguished from that family largely on two bases: firstly the mode of nutrition i.e. parasitism as opposed to autotrophism and secondly a unilocular ovary with parietal placentation as opposed to a bilocular ovary with axile placentation. However, the distinction is imperfect (see Boeshore, 1920; Tiagi, 1962). Scrophulariaceae subfam. Rhinanthoideae may be better referred to the Orobanchaceae and *Lathraea* to the Scrophulariaceae whilst other genera (e.g. *Harveya*) appear uncomfortable in either family. Until the Scrophulariaceae are more clearly delimited, the status of small, segregate families including the Aeginetiaceae Livera is impossible to determine. A survey of herbarium material in A, AAU, ABD, BKF, C, E, K and TCD yielded only 11 collections of *Christisonia siamensis* Craib and 17 of *Aeginetia pedunculata* Wall. The lack of adequate quantities of herbarium material for these two taxa in Thailand makes the distributional data given below more than usually problematic.

OROBANCHACEAE

Leafless, herbaceous root-parasites lacking chlorophyll, usually hairy and with glandular hairs but Thai species hairless. *Stems* usually unbranched, sometimes scaly. *Flowers* solitary or in racemes; irregular. *Sepals* 5, fused, sometimes tubular and ± campanulate and with 2–5 teeth or spathaceous. *Corolla* tubular; sometimes curved; 2-lipped; the upper 2-lobed the lower 3-lobed. *Stamens* 4 in Thai taxa (4 + a staminode in

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many non-Thai taxa), inserted on the corolla tube; anthers 1–2-celled, cells spurred at the base, opening by slits or basal pores, one cell often sterile. Ovary of 2 carpels; 1-celled; ovules usually very numerous, borne on 2 indistinct parietal placentas which may meet in the centre of the ovary. *Style* long; stigma often bilobed but peltate in Thai taxa. *Capsule* 1-celled; 2-valved; placentation 4, intruded, parietal. *Seeds* minute; usually very numerous.

About 15–16 genera and 150–200 species worldwide. Almost cosmopolitan; but absent from Eastern South America, Eastern Australia and New Zealand.

KEY TO THE GENERA

Calyx spathaceous; emerging buds without a covering of transparent slime **1. Aeginetia**
Calyx 3(–5) toothed; emerging buds covered in transparent slime **2. Christisonia**

1. AEGINETIA

L., Sp. Pl. 2: 632. 1753; Roxb., Pl. Comoron. 1: 63. t. 91. 1795; A.DC., Prod. 11. 43. 1847; Beck in Engler, Pflanzenr. 4. 261: 16. 1956; P.H. Hô, Cây co Viêtnam 3: 1. 1992; Philcox in Dassan. & Clayton, Rev. Handb. Fl. Ceylon 11: 371. 1997.

Stems bearing large, almost always solitary, ebracteolate flowers with a spacaceous calyx obscurely split at the front to the base. *Corolla* tube broad, constricted above the ovary, limb obscurely 2-lipped with 5 lobes. *Stamens* included massed together, anthers with 1 cell perfect; upper stamens spurred and gibbous; lower gibbous but not spurred; spur with a terminal conical projection at the tip; dehiscence by ± apical pore-like slits. *Stigma* large, peltate. *Seeds* minute, ?pitted.

About four species occurring from India through China to most of Malesia; two species in Thailand.

KEY TO THE SPECIES

Stems long (usually ?10 cm), straight, unbranched and slender; corolla usually purplish or reddish, rarely white, middle of corolla narrowed with the lower surface ± geniculate; point of insertion of filaments hairless **1. A. indica**

Stems short (usually ?10 cm), sometimes somewhat flexuous, usually branched slender or stout; corolla with white, yellow and purple areas, somewhat curved but not geniculate; point of insertion of filaments with an obvious tuft of hairs **2. A. pedunculata**

1. Aeginetia indica L., Sp. Pl. 2: 632. 1753; Roxb., Pl. Comoron. 1: 63. t. 91. 1798 & Fl. Ind. ed. 2, 3: 30. 1832; Wight, Icon. Pl. Ind. Or. 4. t. 895. 1844; Griff., Icon. Pl. As. t. 423. 1847; Wight, Ill. Ind. Bot. 3: t. 158b. 1850; Hook.f. in Hook.f, Fl. Br. Ind. 4: 320. 1884; Craib in Barnett, Fl. Siam. Enum. 3: 194. 1962; Ramamoorthy in Salandanha & Nicolson, Fl. Hassan Distr., 532. 1976; P.H. Hô, Cây co Viêtnam 3: 1. 1992 (drawing not of *A. indica* but of *A. pedunculata*); Philcox in Dassan. & Clayton, Rev. Handb. Fl. Ceyl. 11: 372. 1997. Type: Rheede, Hortus Indicus Malabaricus 11: 97. t. 47. 1692 (lectotype, selected here).— *A. japonica* Sieb. & Jucc., Abh. Math. Acad. Moench 4, 3: 341. 1845 (Type not located).

Stems all flowering, solitary, 10–35(–40cm) cm tall; yellowish, brownish or reddish to maroon; often red striped. *Flowers* solitary; buds ellipsoid. *Calyx* 2.5–3.5 cm long, the tip erect to recurved; purplish, pinkish, rarely whitish; often glossy. *Corolla* ca. 2–3(–4) cm long; ca. 1.5–2 cm of tube exserted beyond calyx, exserted portion of tube weakly curved or ± straight, usually purplish to maroon on outside, occasionally whitish; lower portion of concealed part of tube strongly flexed, often ± geniculate, forming a narrow throat above the ovary; lobes ca. 2 mm long, rounded, not denticulate, little-spreading; usually purplish to maroon on both surfaces, occasionally whitish externally and purple to maroon on the interior face; glossy externally. *Stamens* included, attached ± at point of inflexion of corolla tube; point of attachment hairless. *Style* yellow or whitish-pink, curved; stigma yellow or whitish-pink, included. *Capsule* ca. 2.5 cm, dehiscent by rotting of the walls. *Pollen* (in Thai material) spherical, ca. 17 ìm in diam., surface finely scabrid (Fig. 1).

Thailand.— NORTHERN: Mae Hong Son (Khun Yuam), Chiang Mai (Doi Chiang Dao, Doi Inthanon, Doi Suthep, Doi Pui, Fang, Mae Taeng, Om Koi, Pong Dueat), Chiang Rai (Ban Maiphatthana), Nan (Doi Khun Sathan, Doi Tiu), Lamphun (Doi Khun Tan, Thoen-Li), Lampang (Mae Yom, Mae Mao, Pang La), Phrae (Mae Song, Sate Ban), Tak (Mu Khi Ho), Sukhothai; NORTH-EASTERN: Phetchabun (Nam Nao), Loei (Phu Kradueng), Sakon Nakhon (Phu Phan), Khon Kaen; EASTERN: Chaiyaphum (Thung Kra Mang), Nakhon Ratchasima (Khao Yai), Surin, Ubon Ratchathani (Yot Dom); SOUTH-WESTERN: Kanchanaburi (Huai Bankao, Kroengkrawia, Sai Yok); CENTRAL: Chai Nat (Nakam Tao), Saraburi (Sabin Lan); SOUTH-EASTERN: Chon Buri (Sri Racha), Chanthaburi (Khao Phra Bat, Pong Nam Ron), Trat (Khao Kuap); PENINSULAR: Surat Thani (Ban Na), Phangnga (Khao Khao, Nangyao), Phuket.

Distribution.— India, Sri Lanka, Myanmar, Vietnam, Malay Peninsula, Java, China, Philippines, Borneo, New Guinea, Japan.

Ecology.— Mainly in hill evergreen, bamboo, dipterocarp and pine forests but also in other forest types and by roadsides; on granite or limestone substrata, 0–1600 m.

Uses.— Whole plant powdered and used for cankerous wounds. Also used in New Guinea to alleviate knee pain (by striking) and used similarly to help small children to walk.

Notes.— This species has not been lectotypified previously. Unfortunately there is no specimen of *A. indica* in LINN. The only original remaining element is the plate from Rheede's *Hortus Indicus Malabaricus* 11: 97. t. 47 (1692) cited by Linnaeus (1753). This plate conforms to Linnaeus' description and is clearly *A. indica*. Therefore, I lectotypify *A. indica* here by reference to that plate.

Hooker (1884) incorrectly cited Roxburgh as the authority for *A. indica*, an error which was also made by Craib (1962). P.H. Hô (1992) added further confusion by citing the authority as (L.) Roxb. The correct authority is Linnaus, as indicated above.

The considerable variation in colour of the corolla appears uncorrelated with other morphological characteristics. Rare individual plants occur throughout the range of the species which have the corolla markedly protruding from the calyx, but do not warrant formal recognition. Material from Japan has been named as *A. japonica* Sieb. & Zucc.;

it is identical to material from Taiwan and the mainland Chinese provinces of Fujian and Guangdon. They all differ from much of mainland southeast Asian material in their more robust habit, generally larger corolla (usually at least ca. 4–5 cm), which has a larger degree of exsertion from the calyx (?2/3). However, as occasional similar individuals occur scattered throughout the range of *A. indica*, including Thailand, *A. japonica* is not recognised here.

Field observations suggest that pollen is released from the anthers when the flower is still in bud and when the anthers and style are closely juxtaposed; whether or not self-fertilisation then occurs requires experimental investigation. Its presence would explain the large amount of local geographical variation in morphology.

2. Aeginetia pedunculata Wall., Pl. As. Rar. 3. 13. t. 219. 1832; Hook.f., Fl. Br. Ind. 4: 320. 1884; Ridl., Fl. Mal. Pen. 2, 488. 1923; Craib in Barnett, Fl. Siam. Enum. 3: 196. 1962; P.H. Hô, Cây co Viêtnam 3: 1. 1992 (drawing not of A. pedunculata but of A. indica); Philcox in Dassan. & Clayton, Rev. Handb. Fl. Ceyl. 11: 372. 1997. Type: Wall., Pl. As. Rar. 3. 13. t. 219. 1832 (lectotype, selected here).— *Orobanche pedunculata* Roxb., Hort. Beng. 45. 1814, nom. nud.— *Orobanche acaulis* Roxb., Pl. Comoron. 3. 90. t. 292. 1819 & Fl. Ind. ed. 2, 3: 29. 1832.— *Aeginetia abbreviata* Buch.-Ham. ex Benth., Scroph. Ind., 55. 1835. Type: India, Wallich 3695 (holotype K).

Stems all flowering, clustered or solitary, usually branched, ?10 cm tall, usually reddish. *Flowers* usually clustered, occasionally solitary; buds ellipsoid. *Calyx* ca. 4 cm long, yellowish, apex apiculate and sometimes somewhat recurved, often glossy. *Corolla* ca. 5–7 cm long; ca. 2.5–3 cm of tube exserted beyond calyx, tube weakly curved throughout, tube white, uppermost section of exposed part of tube and lobes purplish, throat and centre of lower lip yellow; lobes ca. 5 mm long, rounded or deltoid, spreading, the outer margins upcurved, sometimes minutely denticulate. *Stamens* included, attached ± 2/3 of way down corolla-tube; point of attachment with a distinct tuft of hairs, these effectively closing the throat of the corolla tube. *Style* curved; stigma included. *Capsule* dehiscent by rotting of the walls.

Thailand.— NORTHERN: Chiang Mai (Doi Suthep, Op Luang), Chiang Rai (Doi Thung), Nakhon Sawan (Ban Takla); NORTH-EASTERN: Khon Kaen (Nam Nao); EASTERN: Chaiyaphum (Huai Ban Kao); SOUTH-WESTERN: Kanchanaburi (Kannu, Sai Yok, Khao Ai Wao), Ratchaburi; CENTRAL: Chai Nat (Manorom), Lop Buri (Lam Narai); PENINSULAR: Nakhon Si Thammarat (Ban Nong Bua).

Distribution.— India, Myanmar, Vietnam, Peninsular Malaysia, Java, China, Philippines.

Ecology.— Deciduous dipterocarp and bamboo forests, and grassland, 50–1100 m.

Uses.— Used to colour (red/pink) rice and puddings, and in Lop Buri for drying perspiration.

Notes.— The author citation used above requires brief explanation as some confusion exists as to the correct citation for this species. Roxburgh (1814) published the name *Orobanche pedunculata* without a validating reference or description (it does not appear in the lists of valid names of Robinson 1912 or Sprague 1925); it is therefore a nomen nudum. Wallich (1832) published the name *Aeginetia pedunculata* together with

a full, accurate description and drawing; he also cited Roxburgh (1814) in the protologue as either a synonym or, most likely given the prominence of its citation, the potential basionym. However, as Roxburgh's name has no status the correct citation is *A. pedunculata* Wall. In addition neither Roxburgh or Wallich referred to any specimen which could be designated as type. The only available material on which typify the name is an illustration of the species in Wallich (1832). Accordingly *A. pedunculata* is lectotypified here using this illustration.

This species shows a remarkable degree of convergence to *Christisonia siamensis* from which it is not readily separable in the dried state except by its spathaceous corolla; however in the field the long exposed (as opposed to largely hidden) corolla tube of *C. siamensis* is diagnostic as is the coating of copious transparent slime on the emerging flower buds.

2. CHRISTISONIA

Gardner, Calcutta J. Nat. Hist. 8: 161. 1847; Ridl., Fl. Mal. Pen. 2: 489. 1923; Beck in Engler, Pflanzenr. 4. 261: 308. 1956; P.H. Hô, Cây co Viêtnam 3: 2. 1992; Philcox in Dassan. & Clayton, Rev. Handb. Fl. Ceylon 11: 373. 1997.— *Campbellia* Benth., Gen. Pl. 2: 967. 1873 pro major parte excl. Philcox in Dassan. & Clayton, Rev. Handb. Fl. Ceylon 11: 380–381. 1997.

About 20 species occurring from India through to China; one species in Thailand. *Christisonia hookeri* C.B. Clarke has been reported from Vietnam (P.H. Hô, Cây co Viêtnam 3: 2. 1992); however Hô's description of the species suggests that it is not in fact *C. hookeri*-rather a species that is undescribed. It differs from *C. siamensis* in the shape of the anthers, and possession of a yellow corolla; the only other species in the genus with that latter characteristic is the imperfectly known *C. unicolor* Gardner which, however, has exserted stamens which are not evident in Hô's drawing of Vietnamese material. Only further fieldwork in Vietnam will allow confident determination of this taxon's status. Furthermore Philcox (1997) points out that *C. unicolor* is of uncertain status; he considers some material, assigned to this epithet by Livera (1927) to belong to *Campbellia cytinoides* (Reuter) Wight, a species known only from Sri Lanka and Southern India. Philcox maintains the separation between *Campbellia* and *Christisonia*. As he points out, the original diagnoses revolve around characters of the arrangement and placentation of the ovary; characters which are impossible to confirm or deny on the basis of the poor quality, and rarity of the herbarium material currently available. Clearly, the delimitation of the species within *Christisonia* and boundaries between it and other genera are unsatisfactory and a monograph is necessary. However, as the genus does not preserve well on drying, this should not be attempted before the accumulation of significant quantities of liquid and silica gel preserved material.

Christisonia siamensis Craib, Kew Bull. 1914: 129. 1914; Craib in Barnett, Fl. Siam. Enum. 3: 196. 1962; P.H. Hô, Cây co Viêtnam 3: 2. 1992 (drawing is not of *C. siamensis* but possibly of *A. pedunculata*).— *Aeginetia siamensis* (Craib) Livera, Ann. Roy. Bot. Gard. (Peradeniya) 10: 155. 1927. Type: Thailand, Lampang, Sop Nao, c.f. Ngao River, *Kerr* 2406 (lectotype ABD, selected here).

Small parasitic fleshy herbs (?10 cm). *Stems* very short or absent; pedicels usually very short. Buds covered in copious, translucent, tasteless slime when immature. *Flowers* relatively large. *Calyx* yellowish or whitish, sometimes dark purple, tubular, ca. 3 cm., 3-toothed (reportedly up to 5-toothed), teeth ca. 3–6 mm long. *Corolla* long (ca. 5–7 cm) tubular, campanulate, somewhat curved when fresh, 5-lobed; tube dirty white outside, sometimes tinged with purple; lobes ca. 1 cm, bluish to violet with a yellow patch on the middle of the lower lip stretching down the interior of the tube. *Stamens* included; filaments yellow; point of attachment with a distinct tuft of hairs, these effectively closing the throat of the corolla tube; anthers 1-celled, massed together; 1 pair often prominently spurred; spur with an obvious conical projection at the tip; dehiscence by ± apical pore. *Style* long; stigma peltate. *Capsule* bivalved; seeds minute. *Pollen* (in Thai material) spherical, ca. 16 ìm in diam., surface finely scabrid with three prominent grooves (Fig. 2).

Thailand.— NORTHERN: Chiang Mai (Op Luang), Lampang (Sop Nao); NORTH-EASTERN: Loei (Phu Kradueng); SOUTH-WESTERN: Kanchanaburi (Huai Ban Kao, Ka Tha Lai, Thong Pha Phum), Phetchaburi (Kaeng Kra Chan), Lop Buri (Bo Ri).

Distribution.— ?Myanmar.

Ecology.— Usually parasitic on bamboo, usually in deep shade, 300–800 m; frequently on limestone.

Notes.— The 3-toothed calyx may be unique in the genus. However, if Wordsel (1895) and Philcox (1997) are correct *Christisonia subacaulis* (Benth.) Gardner, a species recorded only from Sri Lanka and India (Nilgiri Mountains), has a calyx which is 2-toothed, a fact not reported by Gardner (1847), nor Beck (1956) and which considerably expands the former's delimitation of the genus.

Christisonia siamensis is very sparsely represented in herbaria. It is probably very under-collected and therefore of wider distribution than indicated here. The relationship of *C. subacaulis* to *C. siamensis* requires further investigation. Sri Lankan material of the former is usually much more robust than Thai material with a broader, longer calyx-tube; Indian material is similar to material from Thailand. However, both species are reportedly mucilaginous, and their habit (short scape, densely squamose) and primary hosts (Bamboo) are identical. These species may, therefore, be conspecific. If they are then the former name has priority and *C. siamensis* would then be best treated as a subspecies of *C. subacaulis*. However, much more material of both taxa is needed before confidence in the synonymy can be realised.

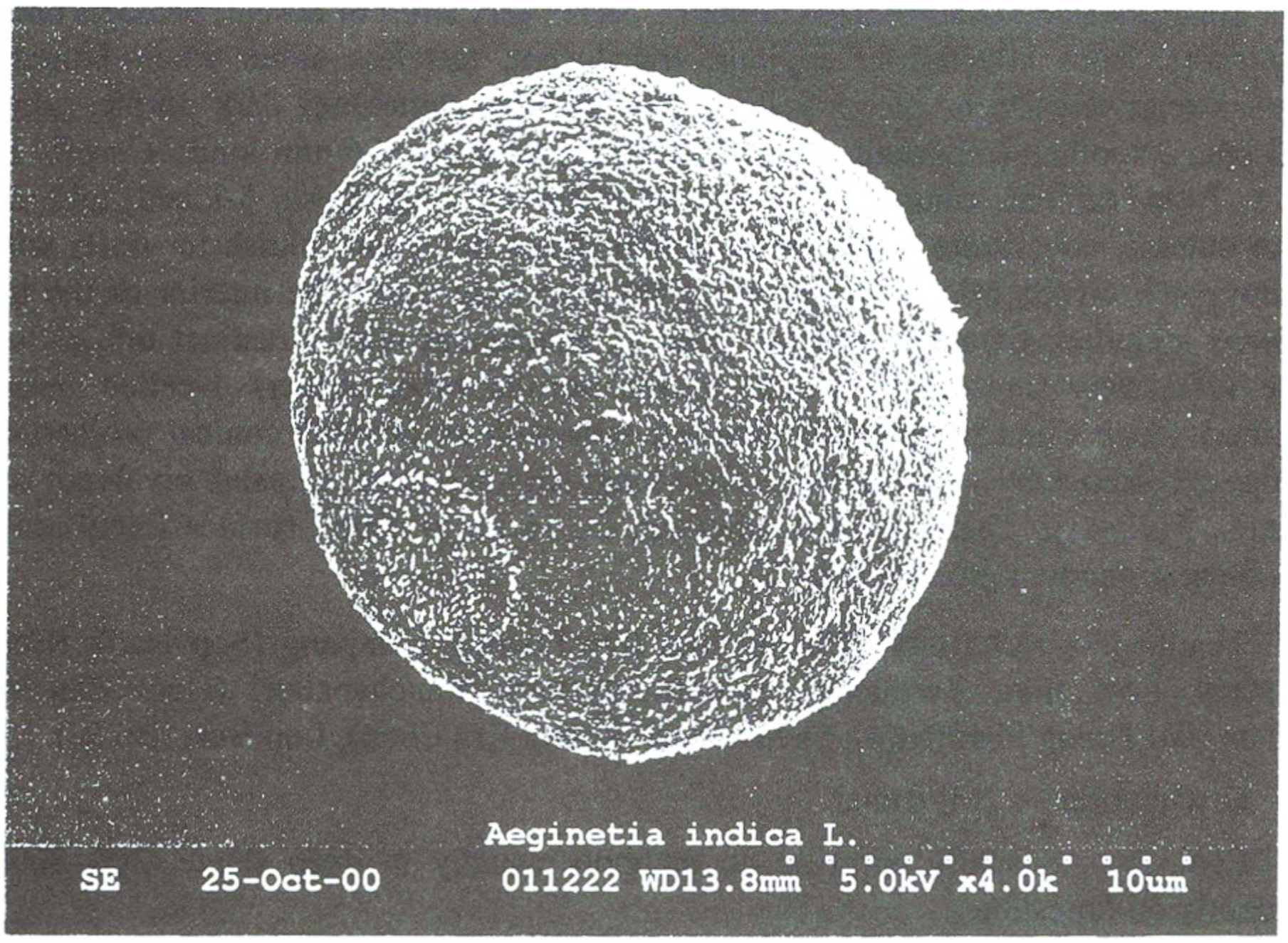

Figure 1. SEM of pollen of *Aeginetia indica* L.

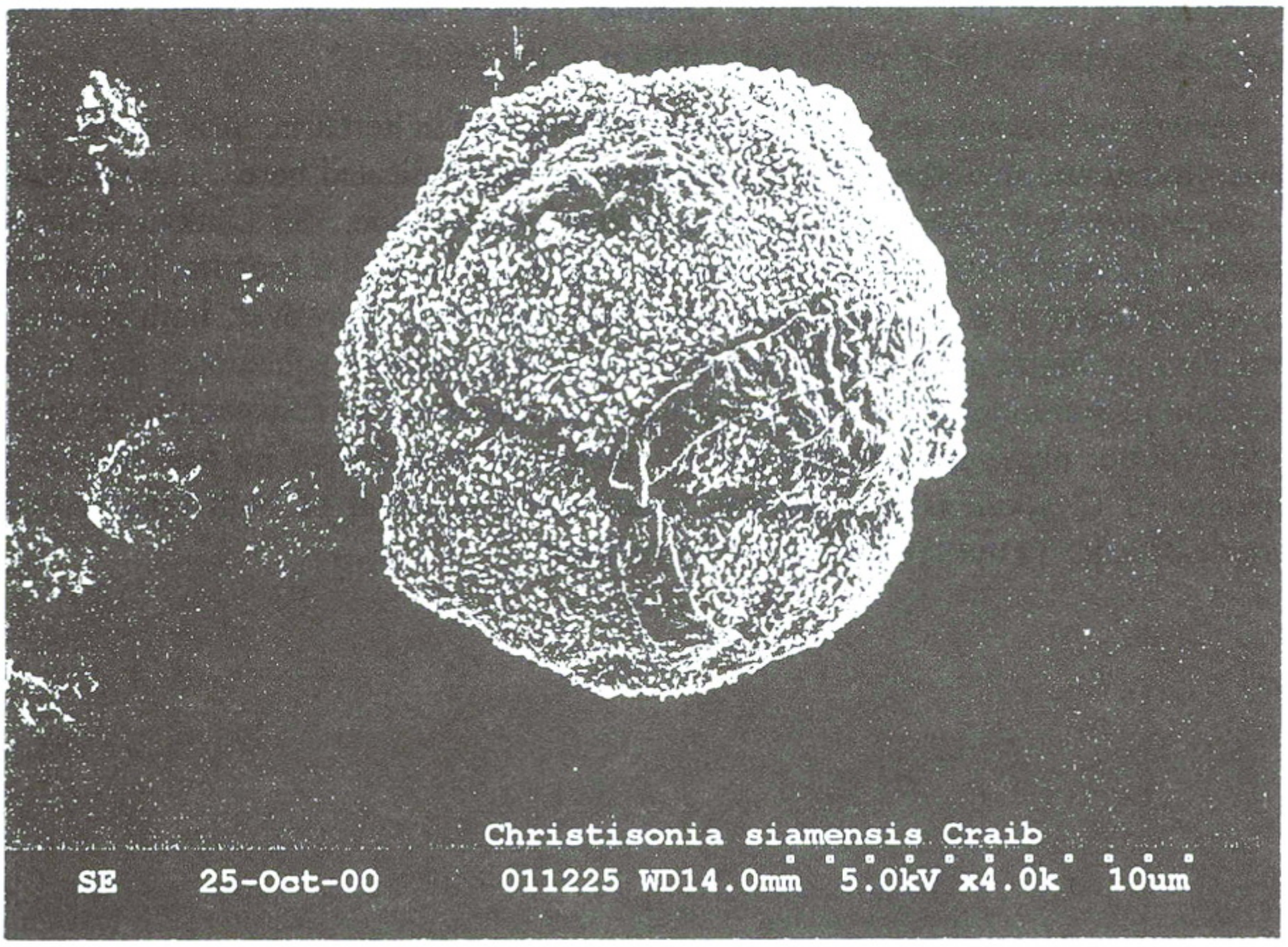

Figure 2. SEM of pollen of *Christisonia siamensis* Craib.

ACKNOWLEDGEMNTS

I thank David Simpson for helping to resolve some of the nomenclatural problems associated with the species described above.

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Wallich, N. 1832. Plantae Asiaticae Rariores; or, descriptions and figures of a select number of unpublished East Indian plants. Treutel & Würtz, London.

Wordsell, W.C. 1895. On the comparative anatomy of certain species of the genus *Christisonia*. Ann. Bot. 9: 103–136.

SPECIMENS EXAMINED

Aeginetia indica L.
Abbe, L.B., Abbe, C.E. & Smitinand, T. 9242 (A, BKF); *Aikamphon, K.* 130 (AAU); *Bae, L.Q.* 11 (A); *Balick, M.* 3469 (C); *Balick, M. & Nanakorn, W.* 8 (AAU); *Bjornland & Schumacher* s.n. (C); *Bunchuai, K.* 1357 (BKF, L), s.n. (BKF); *Bunpheng, D.* 187 (BKF), 595 (ABD, BKF, L); *Burtt, B.* 5594 (E); *Chantaranothai, P., Parnell, J. & Simpson, D.* 90/209 (K); *Chantaranothai, P., Parnell, J., Simpson, D. & Sridit, K.* 90/144 (AAU, K, TCD), 90/209 (TCD); *Charoenphol, C., Larsen, K. & Warncke, E.*, 4343 (AAU), 4687 (AAU); *Christensen, H.* 1536 (AAU); *Collins, D.J.* 523 (K), 1067 (AAU, ABD, K), 2382 (K); *Dixen, H.* 70-294 (AAU); *Frank, C.W.* 289 (C, L); *Garrett, H.B.G.*, 40 (AAU, ABD, BKF, K, L), 306 (AAU, ABD, K, L); *Haniff* 3648 (K); *Kerr, A.F.G.* 765 (K, L, TCD), 1515 (ABD, K, TCD), 1798 (ABD, K), 8238 (ABD, K), 18066 (K), 19713 (K); *Kerr, A.F.G.*? 241 (ABD); *Kostermans, A.* 1397 (A, L); *Koyama, H.* T-61156 (BKF); *Koyama, H., Terao, H., Niyomdam, C. & Wongprasert, T.* T-30393 (BKF); *Larsen, K.* 9694 (C); *Larsen, K. & Larsen, S.S.* 34258 (AAU, E, K), 34316 (AAU, E); *Larsen, K., Larsen, S.S., Nielsen, I. & Santisuk, T.* 31625 (AAU), 32131 (AAU, L), 32161 (AAU, BKF, L); *Larsen, K., Larsen, S.S., Norgaard, C.T., Pharsen, K., Puudjaa, P. & Uerchirakan, W.* 44603 (AAU); *Larsen, K., Larsen, S.S., Tange, C. & Sookchaloem, D.* 46216 (AAU); *Maxwell, J.F.* 71-673 (AAU), 73-473 (AAU), 74-1004 (AAU, L), 85-78 (BKF, L), 87-96 (L), 87-966 (BKF), 89-1175 (A, E), 93-1100 (A), 93-880 (A), 94-891 (A); *Mhahpol, S.* s.n. (BKF); *Murata, G., Iwatsuki, K. & Phengklai, C.* 15000 (BKF); *Nicholson, D.H.* 1663 (K, L); *Phengnaren, S.* 590 (BKF); *Phusomsaeng, S. & Bunchuai, K.* 17 (BKF); *Put* 951 (ABD, K), 3003 (AAU, ABD, E, K); *Rabil* 387 (AAU, ABD, K); *Santisuk, T.* 67 (BKF), 1503 (AAU); *Shimizu, T., Toyokuni, H., Koyama, H., Yahara, T. & Santisuk, T.* T18268 (AAU, BKF); T18578 (AAU, BKF, C, K, L), T19129 (AAU, BKF, C, L), T19175 (AAU, BKF, C, L); *Sleumer, H.* 475 (L); *Smiles, F.H.* s.n. (K); *Smitinand, T.* 1868 (BKF); *Smitinand, T. & Sleumer, H.* 1014 (BKF); *Sorensen, T., Larsen, K. & Hansen, B.* 462 (C), 4641 (C), 4694 (C), 4845 (BKF, C), 4870 (C), 4985 (C), 5493 (A, C); *Suddee, S.* 761 (TCD), 762 (TCD), 810 (TCD); *Suddee, S. & Pooma, R.* 840 (TCD); *Tagawa, M., Iwatsuki, K., Koyama, H., Fukuoka, N., Nalampoon, A. & Chinayungkun, A.* 9110 (AAU, BKF, C, K, L); *Tagawa, M., Shimuzu, T., Hutoh, M., Koyama, H. & Nalampoon, A.* T9807 (L); *Takahhashi, H.* T-63249 (A), T-63497 (A); *van Beusekom, C.F. & Phengklai, C.* 2368 (AAU, BKF, C, E, L), 2655 (A (AAU, BKF, C, E, K, L); *van Beusekom, C.F., Geesink, R., Phengklai, C. & Wongwan, B.* 3695 (BKF, C, K, L); *Winit, K.* 1434 (K); 1808 (ABD); *Yuang* 24 (ABD, K).

Aeginetia pedunculata Wall.
Bjornland & Schmacher, s.n.,(C); *Burkill, H.M.B.* 1284, (K); *Geesink, R., Hattink, T. & Phengklai, C.* 697 (L); *Kerr, A.F.G.* 4612 (ABD); *Kerr, A.F.G.* 19681 (ABD); *Kerr, A.F.G.* 1562b (K); *Kostermans, A.* 117 (L); *Kostermans, A.* 1410 (A); *Larsen, K.* 5254 (C); *Larsen, K.* 8485 (C); *Marcan, A.* 1091 (ABD); *Maxwell, J.F.* 89-1264 (A); *Put* 1121 (ABD); *Sangkhachand, B. & Smitinand., T.* 1572 (BKF, K); *Shimizu, T., Toyokuni, H., Koyama, H., Yahara, T. & Santisuk, T.* T18261 (BKF, L); *Smitinand, T.* 12034 (BKF); *Smitinand, T.* 12099 (BKF); *Sorensen, T., Larsen, K. & Hansen, B.* 5254 (BKF); *Winit, K.* 539 (ABD, K).

Christisonia siamensis Craib
Geesink, R. & Phengkhlai, C. 6063 (BKF, C, E, L); *Jebb, M., Parnell, J. & Pendry, C.* 95-444 (TCD); *Kerr, A.F.G.* 2406 (ABD), LECTOTYPE; *Kerr, A.F.G.* 1151 (K); *Kostermans, A.* 788 (K, L); *Maxwell, J.F.* 73-69 (AAU); *Maxwell, J.F.* 93-612 (A); *Maxwell, J.F.* 97-931 (A); *Put* 161 (ABD); *Smitinand, T.* 418 (BKF); *Winit, K.* 1149 (ABD, BKF, K).